5652

5652

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, *Director*

State: WASHINGTON

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } *Sheet No.* 6.

LOCALITY

Vicinity of PUGET SOUND
Sinclair Inlet and
~~SOUTH END PORT ORCHARD~~
South End Port Orchard
~~AND SINCLAIR INLET~~

19 34.

CHIEF OF PARTY

JACK SENIOR

U. S. GOVERNMENT PRINTING OFFICE: 1931

Form 537
Ed. Dec., 1930

REG. NO. 5652

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 6 5652

REGISTER NO.

State Washington

Vicinity of
General locality Puget Sound

Locality Sinclair Inlet & South End Port Orchard ~~South End Port Orchard & Sinclair Inlet~~

Scale 1:10,000 Date of survey Sept. 6 to Oct. 9, 1934.

Vessel U.S.C. & G.S.S. EXPLORER

Chief of Party Jack Senior

Surveyed by E. B. Lewey

Protracted by F. S. Butler

Soundings penciled by F. S. Butler

Soundings in ~~fathoms~~ feet

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by

Inked by Paul Scher Jr.

Verified by Paul Scher

Instructions dated March 29, 1934.

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1931

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEET NO. 6

Sinclair Inlet & South End Port Orchard

~~SOUTH END PORT ORCHARD AND SINCLAIR INLET~~

Vicinity of PUGET SOUND

WASHINGTON

- 0 -

JACK SENIOR, CHIEF OF PARTY, C. & G. SURVEY

SEASON OF 1934

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEET NO. 6

Sinclair Inlet & South End Port Orchard

~~SOUTH END PORT ORCHARD AND SINCLAIR INLET~~

Vicinity of PUGET SOUND, WASHINGTON

AUTHORITY:

Director's Instructions dated March 29, 1934, Project No. HT - 171.

LIMITS AND GENERAL DESCRIPTION:

The area covered by this sheet lies between Latitudes 47° 31.6' N. and 47° 36.65' N., and Longitudes 122° 33.6' W. and 122° 41.7' W. Junctions are made with Field Sheet No. 4 on the eastern limit in Rich Passage and with Field Sheet No. 5 on the northern limit in Port Orchard. This sheet does not include Port Washington Narrows or Dyes Inlet.

That part of Port Orchard which is included on this sheet extends 3 miles in a north and south direction and averages 1 mile in width. The shores are moderately low and wooded. Rich Passage connects with Port Orchard in Latitude 47° 35.3' N. and Longitude 122° 34.0' W. At this point Rich Passage is about 0.3 mile in width and is marked by an occulting light on its southern shore. Port Washington Narrows connects with Port Orchard on its south-western end in Latitude 47° 34.0' N. and Longitude 122° 37.0' W. A flashing light established on a dolphin in Latitude 47° 33.85' N. and Longitude 122° 36.75' W. is 1/4 mile south-east of entrance to Port Washington Narrows. Sounding lines were discontinued at the tall bridge across the entrance. This bridge has a clearance of 80 feet at High Water.

Sinclair Inlet connects with Port Orchard just south of the entrance to Port Washington Narrows and is 3-1/2 miles long in a north-east -- South-west direction and averages 1 mile in width. Bremerton lies at the north-east end of the Inlet and Port Orchard (town) at the south-east end. The shores of the Inlet to south-westward of Bremerton and Port Orchard are wooded and fairly steep-to.

CONTROL:

Triangulation and topography executed by the Party during the season furnished the necessary control.

METHODS:

The approved methods of the Service were used. In depths of less than 15 fathoms, soundings were taken with ten pound handleads; in greater depths soundings were taken with a power driven sounding machine using an eighteen pound lead and stranded wire.

Sounding lines were run by ranges approximately normal to the shoreline. On the north-eastern half of the sheet the lines were run east and west, while on the south-western half they were run north and south. In general, the lines were spaced 50 meters apart out to the 10 fathom curve and 100 meters apart in greater depths. In the vicinity of points, docks, and over critical areas the lines were apaced 25 meters apart.

Reported rocks were searched for by drifting over the immediate vicinity and sounding continually with the handlead. Also, the bottom was closely inspected wherever it was visible.

All work on this sheet was done with Tender No. 1, Mr. Lewey in charge, positions in small case letters and blue.

CHARACTERISTICS OF THE SHORELINE AND BOTTOM:

The shores are wooded and moderately low over most of the area covered by this sheet.

In general, the beaches are of sand and gravel. The beach on the northern shore of that part of Rich Passage covered by this sheet is of large gravel and boulders, while the southern shoreline is marked by rocky ledges. The beaches on the south-west end of Sinclair Inlet are muddy.

Generally the bottom is muddy, except close inshore where it is sand or gravel. The bottom is rocky in Rich Passage and in the deeper water just west of the entrance to Rich Passage.

CURRENTS:

The strongest currents noted within the area covered by this sheet are at the entrances to Rich Passage and Port Washington Narrows. From observations made while sounding, approximately a five knot current exists at each of these places at the strength of the tide. At Rich Passage the

set is westward on flood tide and eastward on ebb tide. At the entrance to Port Washington Narrows the set is northward on flood tide and southward on ebb tide. In that part of Port Orchard which lies just north of the entrance to Rich Passage the set is north on flood tide, south on ebb tide, and the strength of the current moderates with the distance from Rich Passage. In Sinclair Inlet the currents are moderate and the set is south-west on flood tide; north-east on ebb tide.

TIDES:

A Standard Tide Gauge established by Leonard S. Hubbard in Bremerton, Latitude 47° 33.5' N. and Longitude 122° 38.00' W., was used to determine the tide reducers for the soundings on this sheet.

CHANNELS:

Mid channel courses should be steered when passing through Rich Passage, taking care to pass to southward of the red Nun Buoy #10 in Latitude 47° 35.35' N. and Longitude 122° 33.96' W. This buoy marks the southern limit of a shoal making out from Pt. White.

When entering Port Washington Narrows keep to southward and westward of the flashing light established on a dolphin in Latitude 47° 33.85' N. and Longitude 122° 36.75' W. in order to avoid the shoal making out from Pt. Herron.

When heading for the town of Port Orchard, keep to northward of the black can buoy in Latitude 47° 32.95' N. and Longitude 122° 37.7' W. in order to avoid the extensive shoal to the southward of this buoy.

A shoal makes out from Triangulation Station "LAMONT 2", 1934, Latitude 47° 36.6' N. and Longitude 122° 35.65' W. In order to avoid this shoal, favor the east side of Port Orchard in this vicinity.

No additional notes are necessary for safe navigation of these waters.

ANCHORAGES:

Except in the western entrance to Rich Passage and in the deep water in Port Orchard immediately to the westward, a safe anchorage is available anywhere within the limits of the sheet. The only precaution necessary is to secure the proper depth by use of a handlead or by inspection of the chart.

The Navy maintains a number of mooring buoys in Latitude 47° 33.0' N. and Longitude 122° 38.7' W. This area is used as a Navy anchorage.

COMPARISON WITH EXISTING CHARTS:

This survey agrees satisfactorily with Chart No. 6444 except for two rocks shown as rocks awash in Latitude 47° 33.1' N. and Longitude 122° 39.66' W. This area was closely inspected and numerous soundings taken with handleads while drifting over the charted position of the rocks. The rocks could not be found. Their removal from the chart is recommended.

See Review Par. 2.

The removal of the rocks from the charts is concurred in. See Review

A reported rock in Latitude 47° 32.62' N. and Longitude 122° 38.20' W. was found. There are two rocks here, the higher bares 1/2 foot at M.L.L.W.

A broken piling which had been reported in Latitude 47° 32.58' N. and Longitude 122° 38.32' W. (40 meters north-west of Topographic Signal "DIS") was searched for but not found. According to information received from local sources, this piling was recently removed.

A number of Targets shown on the chart in the south-west end of Sinclair Inlet no longer exist.

DANGERS AND OBSTRUCTIONS:

There are only a few dangers or obstructions within the limits of this sheet. The shores of the entrance to Rich Passage and the shore at Pt. Herron are fringed with kelp. This is the only kelp of any importance in these waters.

1. Low water point extending 150 meters due east of Triangulation Station "LAMONT 2", 1934. This is a rounding, sandy point.

2. Rock baring 1-1/2 feet at M.L.L.W., 430 meters, 18° true from Triangulation Station "LEE 2", 1934. The shoreline for a distance of 1/4 mile north and south of this rock is fringed with a light growth of kelp.

3. The shoreline to a distance of 2/3 mile north-west of White Point and to an average distance of 75 meters offshore, is foul with large boulders and rocks awash at various stages of the tide. This strip of beach has a heavy fringe of kelp to a distance of 150 meters offshore.

4. Rocky reef extending 100 meters, 24° true from Topographic Signal "PETE" in Rich Passage. Reef is fringed with kelp.

5. Rocky reef extending 170 meters, 251° true from topographic signal "NUFF". The reef is surrounded with kelp. Position 146 "c".

6. Rock in kelp baring 1 foot at M.L.L.W., 90 meters, 218° true from topographic signal "CORE" on Pt. Herron. Position 68 "j". Pt. Herron is fringed with kelp to a distance of 175 meters offshore.

7. Low water point extending 250 meters due north of triangulation station "DALL", 1934.

8. Low water point extending 200 meters, 58° true from topographic signal "WIS".

9. Sand flats extending 310 meters, 6° true from topographic signal "LING".

10. Rock awash at M.L.L.W., 165 meters, 271° true from topographic signal "HAY". Position 2 "w".

11. Logging grounds extending 150 meters north and 600 meters east of triangulation station "BENSON 2", 1934. This area is filled with pilings and dolphins.

12. The south-west end of Sinclair Inlet (west of Longitude 122° 41.0' W.) consists of extensive mud flats and bares at M.L.L.W. Also, the northern half of this area is filled with pilings for logging purposes.

All rocks and ledges close inshore are properly noted on the smooth sheet.

NOTE:

Due to the presence of Navy ships undergoing repairs, soundings could not be obtained along some of the docks in Bremerton Navy Yard. However, this area has been dredged to a uniform depth and the soundings obtained were considered sufficient for the survey.

Respectfully submitted,

Ernest B. Lewey

Ernest B. Lewey,
Jr. H. & G. E., C. & G. S.,
U.S.C. & G.S.S. EXPLORER.

Approved and forwarded,

Jack Senior

Jack Senior,
Commanding Officer,
U.S.C. & G.S.S. EXPLORER.

Sheet examined and approved.

Jack Senior

STATISTICS

TO ACCOMPANY HYDROGRAPHIC SHEET NO. 6

DATE-1934	VOL.	DAY	BOAT	STAT. MILES	POS.	SOUNDINGS HAND	SOUNDINGS MACH.	NAUTICAL MI. RUN TO&FROM	NAUTICAL MI. RUN MISC.	NAUTICAL MI. RUN TOTAL
Sept. 6	1	a	T.#1	17.7	201	558	231	1.5	0.0	16.6
" 10	1&2	b	"	16.7	176	429	259	1.5	3.0	19.0
" 11	2	c	"	16.5	181	338	281	2.5	3.5	20.0
" 12	2&3	d	"	11.0	113	214	186	3.8	1.5	14.8
" 18	3	e	"	7.1	105	268	68	26.0	1.0	33.1
" 19	4	f	"	11.3	142	485	50	6.0	3.5	19.3
" 20	4	g	"	13.2	157	510	116	7.5	1.7	20.7
" 21	5	h	"	11.6	124	427	110	4.0	1.5	15.6
" 23	5&6	j	"	15.9	163	593	102	3.0	2.0	18.9
" 24	6	k	"	15.6	171	769	33	4.0	2.0	19.6
" 25	6&7	l	"	13.5	151	769	---	6.0	2.5	20.0
" 26	7	m	"	14.4	148	776	---	6.0	0.5	18.7
" 27	7	n	"	8.6	83	388	---	20.0	1.0	28.6
Total for September:				173.1	1915	6524	1436	91.8	23.7	264.9
Oct. 1	8	p	"	5.9	64	316	---	21.5	0.8	27.4
" 3	8	q	"	15.4	193	905	---	3.0	2.0	18.4
" 4	9	r	"	11.3	128	590	---	5.0	1.5	16.3
" 5	9	s	"	14.4	151	738	---	4.0	2.0	18.4
" 6	10	t	"	11.3	111	605	---	2.0	1.5	13.3
" 7	10	u	"	6.9	85	400	---	2.0	1.0	8.9
" 8	10	v	"	6.6	75	385	---	2.0	1.0	8.6
" 9	11	w	"	7.5	95	413	---	4.0	4.5	15.5
Total for October:				79.3	892	4352	---	43.5	15.3	126.8
Grand Total:				252.4	2807	10876	1436	135.3	39.0	391.7

SECTION OF FIELD RECORDS

Verifier's Report on H- 5652

1.- The records conform to the requirements of the General Instructions.

2.- The usual depth curves were drawn. The field party had unnecessarily penciled the 24 and 36 foot depth curves.

3.- The field plotting was complete with the following exception - all of the located mooring buoys were not plotted. Completed

4.- The office draftsman changed no part of the field party drafting with the following exception- the penciled low water line (in black), taken from the topographic sheet was modified by zero yellow curve.

5.- A satisfactory junction with H.- 5576 (1934) , on the north, was made. The other adjoining sheet H.- 5711 (1934-5) is not verified.

6.- Remarks

a.- Several notes concernigg currents are found in the records, all references to which are on the title pages of each volume.

b.- Notes in the records concerning Camels (log fenders) are on pages 60,62, Volume 6, and page41, Volume 7. (Lat. 47°33'.6; Long 122°37'.6) No indications are found on the topographic or boat sheets. Not inked on smooth sheet to avoid complication with the low water line.

Respectfully s ubmitted.

P. Scherr

P. Scherr

July 11, 1935.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. 5652

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	2807
Number of positions checked	27
Number of positions revised	1
Number of soundings recorded	12312
Number of soundings revised	23
Number of signals erroneously plotted or transferred	✓

Date:
Inking by — { E.E. Goyca 56½ hrs / P. Scherr 48 hrs } GR 4½ hrs. Time: 14 days 6½ hrs.
Verification by P. Scherr
Review by G. Riegari Time: 9 " 3½ "

2AC

March 14, 1935

FE

Division of Hydrography and Topography:

✓ Division of Charts: Attention Mr. E. P. Ellis

Tide Reducers are approved in
11 volumes of sounding records for

HYDROGRAPHIC SHEET 5652

Locality Sinclair Inlet and South End Port Orchard, Puget Sound, Washington.

Chief of Party: Jack Senior in 1934
Plane of reference is mean lower low water, reading
5.8 ft. on tide staff at Bremerton
20.0 ft. below B.M. 1

Height of mean higher high water above plane of reference is 11.5 ft.

Condition of records satisfactory except as noted below:

Paul O. Whitney

Chief, Division of Tides and Currents.

Survey No. 5652

GEOGRAPHIC NAMES

Date. July 11,1935

Chart No. 6460 - 6440

Diagram No.

Approved by the Division of Geographic Names, Department of Interior. ✳

Referred to the Division of Geographic Names, Department of Interior. R

Under investigation. Q

Status	Name on Survey	Name on Chart	New Names in local use	Names assigned by Field	Location
	Port Washington Narrows				120
	Sinclair Inlet				
	Navy Yard				130
	Bremerton				175
	Port Orchard				
	Bainbridge Island				
	Rich Passage				
	Waterman Point				
	Port Orchard	(town)			✓
		APPROVED NAMES UNDERLINED IN RED H.L. Flemer			
					(M-136)

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5652 (1934) - FIELD NO. 6

Sinclair Inlet and South End Port Orchard, Puget Sound, Washington
Surveyed in 1934
Instructions dated March 29, 1934 (EXPLORER)

Hand Lead and Machine Soundings. 3 Point Fixes on Shore Signals.

Chief of Party - J. Senior.
Surveyed by - E. B. Lewey.
Protracted by - F. S. Butler.
Soundings penciled by - F. S. B.
Verified and Inked by - P. Scherr and E. E. Goyea.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

a. A number of mooring buoys were not plotted on the sheet. These additions were made in the office from the sounding records and T-6268 (1934).

The Descriptive Report is complete and comprehensive and satisfactorily covers all items of importance, except as noted in paragraph 2.

2. Compliance with Instructions for the Project.

The survey complies with the instructions for the project and is well executed with the exception that an investigation should have been made of the several charted shoals noted in paragraph 6 of this review and a definite recommendation as to their disposition included in the Descriptive Report.

3. Sounding Line Crossings.

There are practically no cross lines on the sheet, but a study of the close adjacent lines shows the soundings are in good agreement.

4. Depth Curves.

The usual depth curves can be satisfactorily drawn.

5. Junctions with Contemporary Surveys.

The junction with H-5576 (1934) in Port Orchard is satisfactory.

The junction with H-5711 (1934-35) in Rich Passage will be considered in the review of that sheet.

6. Comparison with Prior Surveys.

a. H-1694 (1885), T-1951 (1889) (Contains Hydrography).

These surveys are on scales of 1:20,000 and 1:5,000, respectively. The former covers the entire area of the present survey, while the latter covers a portion of Sinclair Inlet between lats. 47° 36' and 47° 39'. In general, the agreement of the soundings is good, except where extensive changes have been made, such as dry docks, piers, and dredged areas. These old surveys contain no information of importance that need be carried forward and should be superseded by the present survey for charting purposes.

b. T-2196 (1895) (Contains Hydrography), H-2299 (1897), H-2300 (1897).

These are large scale surveys in the dry dock area at the Bremerton Navy Yard. The depths have been so completely changed due to dredging operations and to the construction of piers that there is practically no agreement with the present survey. The old surveys should not be used for future charting purposes.

c. H-2483 (1900).

This survey is on a scale of 1:10,000 and covers the area of the present survey as far north as lat. 47° 36' and as far southwest as long. 122° 39.5'.

In general, the soundings are in good agreement with the following exceptions:

(1) In the entrance to Port Washington Narrows, the present survey shows a deepening, particularly near the west shore, where the present survey shows depths as much as 10 feet greater.

(2) In the vicinities of the waterfront of Bremerton and Port Orchard, the hydrography has been considerably changed, particularly in the former, due to the construction of numerous docks and to dredging operations.

(3) In Port Orchard at lat. 47° 35.5', long. 122° 34.9' the old survey shows a shoaling with a least depth of 111 feet, whereas the present survey shows an undeveloped least depth of 120 feet. Inasmuch as the surrounding depths on the present survey are in fair agreement with the depths on the old survey, the 111 foot sounding, as well as several other soundings that define the 120 foot curve, has been carried forward.

(4) The 117 foot sounding (charted) in lat. 47° 34.85', long. 122° 35' falls in depths of approximately 155 feet on the present survey. Although a ridge is indicated on the present survey within the general 20 fathom deep, the 117 is considered doubtful since an examination of the original sounding records shows that the recorded depth would have been better interpreted as 26 fathoms instead of 20 fathoms as was done. The 26 fathom sounding would agree closely with the depths on the present survey. The 117 foot sounding should be disregarded in future charting.

(5) The 36 foot shoal sounding (charted) in lat. 47° 35.5', long. 122° 34.5' falls between a 45 and a 52 foot sounding on the present survey. The 36 is a single undeveloped sounding on the regular system of lines. While no special examination of this spot was made on the present survey, the general development shows no indication of shoaling. In addition, the wire drag survey cleared the spot with a 39 foot effective depth drag. The 36 foot sounding should be disregarded in future charting.

(6) The 39 foot shoal (charted) in Rich Passage at lat. 47° 35.5', long. 122° 33.7' falls in depths of about 63 feet on the present survey. The 39 is a single undeveloped sounding on the regular system of lines. It is recorded as 7 fathoms 1 foot. If this is changed to 11 fathoms 1 foot, assuming that the recorder misheard understood the leadsman, the depth would be in close agreement with the present survey. Although no examination of this shoal was made on the present survey, the depths in the vicinity show a regular bottom. The 39 foot sounding should be disregarded in future charting.

d. H-2985 (1909).

This survey is on a scale of 1:10,000 and covers the south shore of Sinclair Inlet between lats. 122° 35.5' and 122° 39.5'. In general, the agreement in the soundings with the present survey is good. The new survey has covered the area adequately and shows in general more complete development and should supersede the old survey for charting purposes.

e. H-3765 W. D. (1915), H-3969 W. D. (1916-17).

The former survey is on a scale of 1:10,000 and covers a section of the northern entrance to Rich Passage, while the latter is on a scale of 1:20,000 and overlaps the present survey in Port

Orchard. The effective depths of the drag sheets are in harmony with the present survey. Also, the soundings which accompanied the drag work are in good agreement with the exception of the 6 foot sounding (charted) in lat. 47° 36.45', long. 122° 35.5'. This sounding was found to be erroneously plotted. The corrected plotting makes a satisfactory agreement with the present survey.

f. H-3972 W. D. (1917-28).

This wire drag survey on a 1:10,000 scale covers Sinclair Inlet from off Port Washington Narrows northerly to and including portions of Port Orchard and Rich Passage.

The effective depths are in harmony with the depths of the present survey.

7. Comparison with Charts Nos. 6440, 6444.

a. Hydrography.

(1) Except as noted below, the above charts, within the area of the present survey are based on surveys discussed in the foregoing paragraphs and the U. S. Engineers' survey of 1934 (Bp. 28,556). The latter covers the hydrography in the area of the Navy Yard at Bremerton and is in good agreement with the present survey.

(2) No authority could be found for the two rocks awash charted in lat. 47° 33.1', long. 122° 39.68'. The lower of the two rocks appears to have originated with H-2483 (1900) as a minus $\frac{1}{2}$ ft. sounding, and it may be possible that this minus $\frac{1}{2}$ ft. sounding was interpreted in charting as consisting of two rocks. In connection with this shoal sounding, as well as several other soundings on the same line, it should be noted that they fall among much deeper soundings on the present survey. Although a checking of the old records reveals no discrepancy in plotting, it is possible that the line is out of position and should be farther inshore where good agreement would be had with depths on the present survey.

The present survey investigated the vicinity of the rocks awash and took numerous drift soundings over the spot. (See D. R. page 4). The Chief of Party's recommendation that the two rocks be removed from the chart is concurred in.

(3) No authority could be found for the following charted soundings which fall on the present survey in much greater depths. The present survey shows adequate developments in these areas and does not show any indications of any shoalings. Since the soundings are of uncertain origin they should not be continued on the charts:

The	10	foot	sounding,	lat.	47°	34.4',	long.	122° 36.1'
"	28	"	"	"	47°	34.3',	"	122° 36.1'
"	22	"	"	"	47°	34.05',	"	122° 36.4'
"	69	"	"	"	47°	35.2',	"	122° 34.1'

b. Aids to Navigation.

All aids to navigation were found to be approximately in their charted positions by the present survey with the exception of Buoy "N10" in lat. 47° 35.3', long. 122° 34'. This buoy was located about 50 meters south of its charted position, but adequately marks the feature intended.

8. Field Plotting.

The protracting of positions and the plotting of soundings were well done.

9. Additional Field Work Recommended.

No additional field work is considered necessary.

10. Superseding Old Surveys.

Within the area covered, the present survey, with the indicated additions from previous surveys, supersedes the following surveys for charting purposes:

H-1694 (1885) in part.
T-1951 (1889) contains hydrography. Entirely.
T-2196 (1895) " " "
H-2299 (1897) Entirely.
H-2300 (1897) "
H-2483 (1900) In part.
H-2985 (1909) Entirely.

11. Reviewed by - G. Risegari, September 3, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

C. K. Green, C. K. Green
Chief, Section of Field Records.

L. O. Colbert
Chief, Division of Charts.

K. B. Borden
Chief, Section of Field Work.

G. R. Putnam
Chief, Division of H. & T.

Applied to Cht. 6440 July 22, 1936 K.R. 25 J-7, 1936
" " " 6444 Sept. 22, 1936 K.R.
" " " 6450 Nov. 30, 1936 K.R.
" " " 6460 Apr. 21, 1937 K.R.